

UNCLASSIFIED

AD 405 980

DEFENSE DOCUMENTATION CENTER

FOR

SCIENTIFIC AND TECHNICAL INFORMATION

CAMERON STATION, ALEXANDRIA, VIRGINIA



UNCLASSIFIED

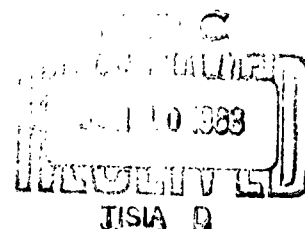
NOTICE: When government or other drawings, specifications or other data are used for any purpose other than in connection with a definitely related government procurement operation, the U. S. Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.

63-3-6

405980

BOEING

405 980



SEATTLE, WASHINGTON

THE BOEING COMPANY

2-4142

NUMBER D2-13406, Vol. II

CODE IDENT 81205

UNCLASSIFIED TITLE Launch Control System Test Procedures,
Network Resolution Area (NRA)

MODEL NO. WS-133A CONTRACT NO. AF 04(647)-289

ISSUE NO. 19 ISSUED TO Astia

CLASSIFIED TITLE _____
(STATE CLASSIFICATION) _____

5-78105-5640-68978-74620

CHARGE NUMBER

SPECIAL LIMITATIONS ON ASTIA DISTRIBUTION

ASTIA may distribute this report to requesting agencies subject to their security agreement, approved fields of interest, and the following:

☒ UNLIMITED—To all agencies of the Department of Defense and their contractors.

☐ LIMITED—To U. S. Military organizations only.

This report may be distributed to nonmilitary agencies not approved above subject to Boeing approval of each request.

NOTE: the LIMITED category may be checked only because of actual or potential patent, proprietary, ethical, or similar implications.

DOCUMENT, TITLE PAGE U3 4287 9000 REV. 10/61

PREPARED BY D.M. Viehouser 9-17-62
D.M. Viehouser
SUPERVISED BY E.G. Helling 9/27/62
E.G. Helling
APPROVED BY R.B. Edgar 9-27-62
R.B. Edgar
CLASS. & DISTR. R.B. Edgar 9-27-62
APPROVED BY R.B. Edgar

RELIABILITY
APPROVAL _____

(DATE)

VOL. 2
SEC.

NO. D2-13406
PAGE 1 OF

ACTIVE-CHANGED PAGE

[illegible]

REVISED _____
4
US 4200 1000 .

BOEING	VOL. 2	NO. D2-13406
	SEC.	PAGE 2



TABLE OF CONTENTS

	<u>Page</u>
1.0.0 Introduction	6
1.1.0 Level of Testing	6
1.2.0 Equipment in Test	7
2.0.0 Procedures	
2.1.1.1 LCP Power ON	9
2.2.1.1 LF Power ON	11
2.3.1.1 Single Thread, LF Startup	13
2.3.1.2 Single Thread, Remote Test	15
2.3.1.3 Single Thread, Remote Calibrate	17
2.3.1.4 Single Thread, Remote SCN Test	19
2.3.1.5 Single Thread, Target Command	21
2.3.1.6 Single Thread, One Launch Vote and Inhibit	23
2.3.1.7 Single Thread, Two Launch Votes	26
2.3.1.8 Single Thread, Missile Away	28
2.3.2.1 Silo Alarms and VRSA Reporting	29
2.3.2.2 No-Go Tests and VRSA Reporting	32
2.3.2.3 Security Violations	37
2.3.2.4 Continuity Loops	38
2.3.3.1 SIN Communications LCP to LF	40
2.3.3.2 SIN Communications, LF Intrasite	41
2.3.3.3 HVC Communications, LCP to MS/CTE	42

LIST OF FIGURES INDEX

	<u>Page</u>
Figure No. 2.1.1.1-1 NRA II Block Diagram	43



LIST OF TABLES INDEX

		<u>Page</u>
Table 2.3.1.2-1	System Response to a Test Command	16
Table 2.3.1.3-1	System Response to a Calibrate Command	18
Table 2.3.1.4-1	System Response to an SCN Test Command	20
Table 2.3.1.6-1	System Response to a Launch Sequence	24
Table 2.3.2.1-1	System Response to Alarms	30
Table 2.3.2.2-1	System Response to No-Go's	34

1.0.0

INTRODUCTION

1.0.0.1

This volume consists of all the test procedures of the NRA II Test Program. It should be noted, however, that the contents of this volume will be added to and revised during the test program.

1.0.0.2

The complete description of the NRA Program Plan is outlined in document D2-13405, Network Resolution Area (NRA) Test Program Plan, Block Change I. This document describes the purpose and scope of the NRA program. A detailed description of test organization, test configuration and test objectives is given.

1.1.0

Level of Testing

1.1.0.1

This series of tests will be of a single thread nature only. They will verify the operational compatibility of the NRA LF and LCF equipment to perform correctly on NRA Power. For trouble-shooting, test points will be available at module inputs and outputs.

1.2.0 EQUIPMENT IN TEST

1.2.1.0 OGE Equipment

1243 Launch Control Console P/N 25-24172-11 S/N 0003
1213A Command Message Processing Group P/N 8323614-501 S/N 0000005
1213B Status Message Processing Group P/N 8323615-500 S/N 0000004
1265 Digital Data Group P/N 8323562-501 S/N 0000004
1338 Communications Control Console P/N 25-27095-2 S/N 0000005
1302 Telephone Connecting and Switching Set P/N 1274180-501 S/N 0000006
1303 Repeater Telephone Set P/N 1274176-501 S/N 0000012
1304 Jack Box (4 each) P/N 1273048-501 S/N 0000196 thru 0000199.
1306 Telephone TA-466/GTC-8 P/N 1274025-501 S/N 0000007
1343 Telephone TA-462/GTC-8 P/N 1274017-501 S/N 0000007
1228 Status-Command Message Processing Group P/N 8323617-501 S/N 0000005
1251 Digital Data Group P/N 8323616-502 S/N 0000005
1279 Repeater Telephone P/N 8318749-501 S/N 0000005
1201 Programmer Group P/N 25-22036-970 S/N 0001
604 G&C Coupler P/N 55078-107 S/N A002B
695 G&C Coupler Test Set P/N 55064-107 S/N CPD0003
1268 Electro-Mechanical Decoder P/N 1801400-1 S/N 0000007
1300 Handset (2 each) P/N 1270069-2 S/N 0000003 and 0000004
1301 Headset-Microphone (2 each) P/N 1270074-2 S/N 0000005 & 0000006
1337 Distribution Box P/N 25-23468-32 S/N 0003
1341 Telephone P/N 1274031-501 S/N PPT #1
1343 Telephone P/N 1274017-501 S/N 0000007

1412 VESA (Preprototype) EM-1
AC0 100 Startup Unit P/N 25-28001-3 S/N 001
AC0 102 Missile Electronics Simulation Kit

1.2.0.2 Test Support Equipment

Patch Panel P/N 25-29327-2
Patch Panel P/N 25-29327-3
Message Simulator 25-29584-1
Digital Data P/N 25-29584-1
MRA Cables P/N 25-34198-5
SAM Signal Simulator P/N 25-25085-1
DC Power Panel P/N 25-24959-33
AC Switch Panel 25-35766-1
Cable Simulator P/N 8318157-503
Cable Simulator P/N 8318157-504
Target Command Decoder 25-33032-1
Auxiliary Launcher, Simulator 25-34197-1



TEST 2.1.1.1

1. Title

LCF Power Startup on Lab Power

2. Objectives

To startup the LCF on Lab power for system operation.

3. Description

- 3.1 Connect the LCF equipment per Figure 2.1.1.1-1.
- 3.2 Verify that cooling is on. Reset the Cooling Safe Unit if necessary.
- 3.3 Verify that the Main Power Control is on at the AC Switch Panel.
Reset if necessary.
- 3.4 Verify that the breakers on the SCN racks are open.
- 3.5 Turn on the Perkins Power Supplies. Reset the voltage trip on each power supply.
- 3.6 Turn on the battery switch for the LCF power supply.
- 3.7 Close the SCN breakers at the DC Power Panel.
- 3.8 Close the breakers at the SCN racks. Verify that the Lamp Test functions are operative.
- 3.9 Close the LCC breaker at the DC Power Panel.
- 3.10 Reset the status lamps on the LCC by using the Lamp Test function.
- 3.11 Close the breakers at the DC Power Panel for the MS/CTE and CCC.
- 3.12 Close the LCC breaker at the AC Switch Panel.
- 3.13 Close the LCF SIN/TTE breaker at the 60 cycle AC Power Panel.
- 3.14 Power startup complete.

4. Equipment in Test

4.1 Refer to Figure 2.1.1.1-1.

5. Test Equipment Required

5.1 None

6. Data Requirement

Record all observations in the Test Log.

TEST 2.2.1.1

1. Title

LF Power Startup on Lab Power.

2. Objective

To startup the LF on Lab Power for system operation.

3. Description

3.1 Connect the LF equipment per Figure 2.1.1.1-1.

3.2 Verify that cooling is on. Reset the Cooling Safe Unit if necessary.

3.3 Open the breakers to the P/G and Coupler at the AC Switch Panel.

3.4 Verify that the Main Power Control lamp at the AC Switch Panel is On.
Reset if necessary.

3.5 Verify that the P/G ON Facility Power and Coupler ON Facility Power
lamps at the AC Switch Panel are on.

3.6 Place all switches on the Launcher Auxiliary Simulator, Missile Simulator,
Startup Unit and G&C Coupler Test Set to the Off or Normal position.

3.7 Verify that the Emergency Power Test lamp on the AC Switch Panel
is OFF. If ON, manually reset relay K6.

CAUTION: Dangerous voltages are present in the
proximity of this relay.

3.8 Verify that the Power Test lamp on the AC Switch Panel is off.

3.9 Close the SCN breakers at the DC Power Panel.

3.10 Close the breaker at SCN Rack 402.

3.11 Close the breaker at SCN Rack 401.

- 3.12 Close the Ordnance Power breaker at the Perkins Power Supply.
- 3.13 Close the P/G and Coupler breakers at the AC Switch Box.
- 3.14 Close the LF SIN/TTE breaker at the 60 cycle AC Power Panel.
- 3.15 Turn on the Power switch at the Startup Unit. The Power On lamp illuminates.
- 3.16 Place the Missile Simulator Power switch ON.
- 3.17 Place the Remote/Local switch to Local at the Startup Unit.
- 3.18 Place the Disable Discretes and Halt Prime switches to the ON position at the Startup Unit.
- 3.19 Place the G&C Coupler Test Set power switch to the ON position. If the Malfunction lamp is On, depress the Malfunction Reset button.
- 3.20 Depress the P/G and Coupler Power On button at the Startup Unit.
- 3.21 Depress the G&C System Power On button at the Startup Unit.
- 3.22 Startup complete.

4. Equipment in Test

- 4.1 Refer to Figure 2.1.1.1-1.

5. Test Equipment Required

- 5.1 None

6. Data Requirements

Record all observations in the Test Log.

TEST 2.3.1.1

1. Title

Single Thread, LF Startup

2. Objectives

To perform a single thread startup of the LF on Lab Power.

3. Description

3.1 Connect the equipment per Figure 2.1.1.1-1.

3.2 Perform the LF power startup per Test 2.2.1.1.

3.3 Place the Timer Speed-Up Inhibit switch to the OFF position.

3.4 Place the Halt Prime and Disable Discretes switches at ACO 100 to the OFF position.

(a) The Disable Discretes and Halt Prime True lamps at ACO 100 shall be OFF. The Alignment in Process lamp shall come ON.

(b) At 6 min. 10 sec. the ACO 100 Test in Process and Calibrate in Process lamps shall come ON.

(c) At 6 min. 40 sec. the ACO 100 Alignment in Process lamp shall go OFF.

(d) At 6 min. 58 sec. the ACO 100 Alignment In Process and Start Calibrate lamps shall come ON.

(e) At 7 min. 10 sec. the ACO 100 Test in Process lamp shall go OFF.

(f) At 8 min., depress the Calibrate button on the ACO 100. The Alignment in Process and Start Calibrate lamps shall go OFF and the Calibrate in Process lamp shall come ON at the ACO 100.

(g) At 28 min. the Calibrate in Process lamps at the ACO 100 and the Coupler Test Set shall go OFF. The Strategic Alert lamp at the ACO 100 shall come ON.

3.5 To reach Strategic Alert without performing steps 3.4b through 3.4g, perform the following steps:

- (a) Make the Program Advance switch at the Coupler Test Set True.
- (b) Make the Program Advance False when the Test in Process lamp illuminates at the ACO 100.
- (c) When the Start Calibrate lamp comes on at the ACO 100, depress the Calibrate Command button.
- (d) Make the Program Advance True until the Strategic Alert lamp illuminates at the ACO 100.
- (e) Make the Program Advance False.

3.6 Test Complete.

4. Equipment in Test

See Figure 2.1.1.1-1.

5. Test Equipment Required

None

6. Data

Record all observations in the Test Log.

TEST 2.3.1.2

1. Title

Single Thread Remote Test From the Strategic Alert Mode.

2. Objectives

To initiate a Test Sequence from the LCF to the LF.

3. Description

3.1 Connect the equipment per Figure 2.1.1.1-1.

3.2 Start the LF System to Strategic Alert per Test 2.3.1.1.

3.3 Place the ACO 100 Local/Remote Switch to Remote. The Remote lamp shall come ON.

3.4 Initiate a Test Command from the Launch Control Console and verify the correct system responses per Table 2.3.1.2-1.

3.5 Test Complete.

4. Equipment in Test

See Figure 2.1.1.1-1.

5. Test Equipment Required

None

6. Data Requirements

Record all observations in the Test Log.

Table 2.3.1.2-1

Test Response to Test Command

Equipment

- | | |
|------------------------------------|--|
| Launch Control Console | 1. (a) Strategic Alert indicator extinguishes.
(b) Standby indicator illuminates.
(c) After 60 seconds the Strategic Alert indicator illuminates and the Standby indicator extinguishes. |
| Missile & Silo Simulator (ACC 114) | 2. (a) After 41 seconds, the HCU Power On indicator illuminates.
(b) When response 2(a) occurs, the F/C Electronics indicators illuminate.
(c) 11 seconds after response 2(a) occurs, the HCU Power On indicators extinguish.
(d) When response 2(c) occurs, the F/C Electronics indicators extinguish. |
| Startup Unit (ACC 100) | 3. (a) The Strategic Alert indicator extinguishes.
(b) The Test in Process indicator illuminates.
(c) After 60 seconds the Strategic Alert indicator illuminates and the Test in Process indicator extinguishes. |



TEST 2.3.1.3

1. Title

Single Thread Remote Calibrate from the Strategic Alert Mode.

2. Objectives

To initiate a Calibrate Sequence from the LCF to the LP.

3. Description

3.1 Connect the equipment per Figure 2.1.1.1-1.

3.2 Startup the system to Strategic Alert per Test 2.3.1.1.

3.3 Place the AGO 100 Local/Remote switch to Remote. The Remote lamp shall come ON.

3.4 Place the Timer Speedup Inhibit switch to the OFF position.

3.5 Initiate a Test Command from the Launch Control Console and verify the correct system responses per Table 2.3.1.3-1.

3.6 Test complete.

4. Equipment in Test

See Figure 2.1.1.1-1.

5. Test Equipment Required

None.

6. Data Requirements

Record all observations in the Test Log.



Table 2.3.1.3-1

Test Response to Calibrate Command

Equipment

Launch Control Console

1. (a) Strategic Alert Indicator extinguishes.
(b) Standby Indicator illuminates.
(c) After 20 minutes the Strategic Alert indicator illuminates and the Standby indicator extinguishes.

Startup Unit
(ACQ 100)

2. (a) Strategic Alert indicator extinguishes.
(b) Calibrate in Process indicator illuminates.
(c) After 20 minutes the Strategic Alert indicator illuminates and the Calibrate in Process lamp extinguishes.



TEST 2.3.1.4

1. Title

Single Thread Remote SCN Test.

2. Objectives

To initiate an SCN Test Sequence from the LCF to the LP.

3. Description

3.1 Connect the equipment per Figure 2.1.1.1-1.

3.2 Startup the system to Strategic Alert per Test 2.3.1.1.

3.3 Initiate an SCN Test Command from the Launch Control Console and verify the correct system responses per Table 2.3.1.4-1.

3.4 Reset the SCN Test Received indicator by depressing the SCN Test Reset button.

3.5 Reset the Inner and Outer Security Violated indicators by depressing the Security Reset button in conjunction with the button on the Missile Status Indicator panel.

3.6 Test complete.

4. Equipment in Test

See Figure 2.1.1.1-1.

5. Test Equipment Required

None

6. Data Requirements

Record all data observations in the Test Log.



Table 2.3.1.4-1

Test Response to the SCH Test Command

Equipment

- | Equipment | Test Response to the SCH Test Command |
|------------------------|---|
| Launch Control Console | 1. (a) Launch in Process indicator illuminates.
(b) SCH Test Received indicator illuminates.
(c) Standby Indicator illuminates after 0.4 seconds.
(d) Inner and Outer Security Violated indicators illuminate. |

NOTE: This condition only will occur when the

Security System is connected.

- (e) After 10 seconds the Launch in Process and Standby indicators extinguish.

TEST 2.3.1.6

1. Title

Single Thread, One Launch Vote and Inhibit.

2. Objective

To perform a single thread Launch Vote and Inhibit from the LCF to the LF.

3. Description

3.1 Connect the equipment per Figure 2.1.1.1-1.

3.2 Startup the equipment to Strategic Alert per Test 2.3.1.1.

3.3 Arm LF 2 at the CCC by activating Launch Enable switch LF 2.

3.4 Verify that the Armed status indicator at the LCC illuminates and Alarm #1 activates. Depress the Alarm Reset button.

3.5 Initiate a Launch Command at the LCF. Verify that the Strategic Alert lamp extinguishes, the Launch Commanded and Launch in Process lamps illuminate and Alarm #2 activates. Depress the Alarm Reset button.

3.6 Initiate an Inhibit Launch command from the LCC.

3.7 Verify that the Launch Commanded indicator immediately extinguishes and the Strategic Alert lamp illuminates; after 205 seconds the Launch Enable unit resets.

3.8 Perform 3.5 through 3.6 and initiate a Launch command from the Message Simulator within 205 seconds.

3.9 Verify that a Launch Sequence is completed and verify system response per Table 2.3.1.6-1.

3.10 Test Complete.

4. Equipment in Test

See Figure 2.1.1.1-1.

5. Test Equipment Required

None.

6. Data Requirements

Record all observations in the Test Log.



Table 2.3.1.6-1

Equipment	Test Response to Two Launch Votes and One Inhibit
Launch Control Console	<ol style="list-style-type: none"> 1. (a) The Strategic Alert Indicator extinguishes, the Launch Commanded and Launch In Process lamps illuminate. Alarm #2 shall activate. Reset audible alarm. (b) After 20 seconds the Inner Security and Outer Security lamp shall illuminate. Alarm #1 shall activate. Reset audible alarm. (c) After 30.5 seconds the Missile Away and Fault indicators shall illuminate. Alarm #1 shall activate. Reset audible alarm.
Startup Unit ACO 100	<ol style="list-style-type: none"> 2. (a) After 6 seconds (± 3 seconds) the Strategic Alert indicator extinguishes. (b) 11 seconds (± 2 seconds) after 2 (a) occurs, the OAC System Power On indicator extinguishes. (c) 31 seconds (± 2 seconds) after response 2 (a) occurs, the No-Go indicator illuminates. (d) 33 seconds (± 2 seconds) after response 2 (a) occurs, the SAM and Coupler Power On indicators extinguishes. (e) When 2 (d) occurs, the Alignment In Process and OAC Error indicator illuminate.

Table 2.3.1.6-1 (Continued)

Equipment	Test Response to Two Launch Votes and One Inhibit
Missile Downstage and Auxiliary Launcher Simulator ACO-114	<p>3. (a) The MCU Power indicators shall illuminate.</p> <p>(b) After 4 seconds the MCU Power indicators and P/G Electronics indicators shall extinguish.</p> <p>(c) 2 seconds after 3 (b) occurs, MCU Power indicators and P/G Electronics shall illuminate.</p> <p>(d) 3 seconds after 3 (b) occurs, activate Missile Battery indicators shall illuminate.</p> <p>(e) 7 seconds after 3 (b) occurs MCU Power, Guidance Electronics and P/G Electronics indicators shall extinguish. The GAC System Power Off indicator shall illuminate.</p> <p>(f) 14 seconds after 3 (b) occurs, Critical Leads Disconnect, Release GAC Umbilical, GAC Umbilical Released, Arm Ordnance Devices and Retract GAC Umbilical indicators illuminate. The Ordnance Devices Safe indicator extinguishes.</p> <p>(g) 15 seconds after 3 (b) occurs, Remove Closure indicators illuminate.</p> <p>(h) 22 seconds after 3 (b) occurs, the Ignite 1st Stage Engine and Missile Away indicators shall illuminate.</p>

TEST 2.3.1.7

1. Title

Single Thread, Two Launch Votes.

2. Objective

To perform a single thread launch by initiating two votes from the LCF and Message Simulator to the LP.

3. Description

3.1 Connect the equipment per Figure 2.1.1.1-1.

3.2 Startup the equipment to Strategic Alert per Test 2.3.1.1.

3.3 Arm LP 2 at the CCC by activating Launch Enable switch LP 2.

3.4 Verify that the Armed status indicator at the LCC illuminates and Alarm #1 activates. Depress the Alarm Reset button.

3.5 Initiate two Launch votes from the LCF and Message Simulator.

3.6 Verify that a Launch Sequence is completed and that the system response occurs according to Table 2.3.1.6-1 of Test 2.3.1.6.

3.7 Adjust the mode-time counter for 12.6 ± 0.1 seconds.

3.8 Initiate two Launch votes and War Plan B. Verify that a Launch sequence is initiated after the preset time period of the mode-time counter in paragraph 3.7 has elapsed.

3.9 Adjust the long-time counter for 54 minutes.

3.10 Initiate one Launch vote from the LCF and verify that a Launch Sequence is initiated after the preset time period of the long-time counter in paragraph 3.9 has elapsed.

3.11 Test Complete.

4. Equipment in Test

See Figure 2.1.1.1-1.

5. Test Equipment Required

None

6. Data Requirements

Record all observations in the Test Log.

TEST 2.3.1.8

1. Title

Single Thread Missile Away.

2. Objective

To simulate a Missile Away to determine system response.

3. Description

3.1 Connect the equipment per Figure 2.1.1.1-1.

3.2 Startup the system to Strategic Alert per Test 2.3.1.1.

3.3 Initiate a Launch Sequence per Test 2.3.1.7.

3.4 When the Critical Leads Disconnect indicator at the Missile Downstage and Auxiliary Launcher Simulator illuminates, disconnect the G&C Umbilical cable to obtain a loss of signal ground.

3.5 Compare the system response to that of Test 2.3.1.7.

3.6 Test complete.

4. Equipment in Test

See Figure 2.1.1.1-1.

5. Test Equipment Required

None

6. Data Requirements

Record all observations in the Test Log.



TEST 2.3.2.1

1. Title

Sile Alarms and VRSA Reporting.

2. Objectives

To simulate Alarm conditions to the LF Monitoring System to verify correct system response and VRSA reporting.

3. Description

3.1 Connect the equipment per Figure 2.1.1.1-1.

3.2 Place the system into Strategic Alert per Test 2.3.1.1.

3.3 Activate the appropriate alarm per Table 2.3.2.1-1 by placing the alarm switch to the Test position. After the Alarm lamp illuminates, interrogate VRSA. Remove the alarm condition after each test and reset VRSA.

3.4 Verify the correct system response to each alarm per Table 2.3.2.1-1.

3.5 Test complete.

4. Equipment in Test

See Figure 2.1.1.1-1.

5. Test Equipment Required

None

6. Data Requirements

Record all observations in the Test Log.



Table 2.3.2.1-1

Fault	Location	Response
1. Primary Power Alarm	AC Switch Panel switch	(a) After 64 seconds the Alarm lamp at the Startup Unit and the Fault lamp at the LCC shall illuminate. (b) Alarm #1 at LCC. (c) VESA Channel #21
2. Launch Tube Flood	Launcher Aux. Sim. switch	(a) Same as (1 a & b) above. (b) VESA Channel #18.
3. Launch Temperature Alarm	Launcher Aux. Sim. switch	(a) Same as (1 a & b) (b) VESA Channel #25.
4. Equipment Inlet Air Humidity	Launcher Aux. Sim. switch	(a) Same as (1 a & b) (b) VESA Channel #24
5. Equipment Inlet Air Temp. & Flow	Launcher Aux. Sim. switch	(a) Same as (1 a & b) (b) VESA Channel #23
6. Seismic Alarm	Coupler Test Set switch	(a) Same as (1 a & b) (b) VESA Channel #22
7. G&C Comp. Temp. Alarm	Launcher Aux. Sim. switch	(a) Same as (1 a & b). (b) VESA Channel #11



Table 2.3.2.1-1 (Continued)

Fault	Location	Response
6. LRU Fault	Connect 401A5J1-S to ground at 401A7J2-G	(a) The Fault lamp at the LCC shall illuminate. (b) Alarm #1 at the LCC.
9. MDU Fault	Connect 402A4J1-S to CV 1254	(c) VESA Channel #29
10. LRU Fault	Connect 402A3J1-T to ground at CT22.	(a) Same as (8 a & b) (b) VESA Channel #31
11. Loss of Tone	Remove tone at F2R1 from Receive Line #1	(a) Same as (8 a & b) (b) VESA Channel #28
12. Command Network Fault	Send an invalid message to the LP.	(a) Same as (8 a & b) (b) VESA Channel #32
13. MDU Fault	Remove the Decoder drawer	(a) Same as (8 a & b) (b) VESA Channel #30.



TEST 2.3.2.2

1. Title

No-Go Tests and VRSA Reporting.

2. Objectives

To simulate No-Go conditions to the LF to verify correct system response and VRSA reporting.

3. Description

3.1 Connect the equipment per Figure 2.1.1.1-1.

3.2 Place the system into Strategic Alert per Test 2.3.1.1.

3.3 Activate the appropriate switch necessary to initiate the desired No-Go condition. After the system shuts down, interrogate VRSA. Remove the No-Go by de-activating its associated switch and perform the LF Startup per Test 2.3.1.1. Depress the Reset switch on VRSA.

3.4 Verify the correct system response to each No-Go per Table 2.3.2.1-1.

3.5 Place the system into Strategic Alert.

3.6 Initiate Launch Sequences per Test 2.3.1.7 followed by No-Go's per Table 2.3.2.2-2.

3.7 Verify the correct system response to each No-Go per Table 2.3.2.2-2.

3.8 Initiate Launch Sequences per Test 2.3.1.7 followed by No-Go's per Table 2.3.2.2-3 when the Armed Ordnance Devices indicator at the Missile Downstage Simulator illuminates.

3.9 Verify the correct response to each No-Go per Table 2.3.2.2-3.

3.10 Test Complete.



4. Equipment in Test

See Figure 2.1.1.1-1.

5. Test Equipment Required

None.

6. Data Requirements

Record all observations in the Test Log.

Table 2.3.2.2-1

Fault	Location	Response
1. Ordnance Devices Safe Inhibit No-Go	Missile Downstage Simulator	(a) P/G & Coupler Shut-down (b) Alarm #1 and Fault indicator activated at LCC. (c) VBSA Channel #6
2. W/H No-Go	Missile Downstage Simulator	(a) Same as (1 a & b) (b) VBSA Channel #6
3. R/V Arming and Fusing No-Go	Missile Downstage Simulator	(a) Same as (1 a & b) (b) VBSA Channel #7
4. C&C Compartment Temperature No-Go	Auxiliary Launcher Simulator	(a) Same as (1 a & b) (b) VBSA Channel #11
5. P/G Shut-down	Programmer Group	



Table 2.3.2.2-2

Fault	Location	Response
1. Ordnance Devices Safe Inhibit	Missile Downstage Simulator	(a) P/O & Coupler shutdown (b) Alarm #1 and Fault indicator activated at ICC.
2. W/H No-Go	Missile Downstage Simulator	(c) VESA Channels #6, 16 & 17 (a) Same as (1 a & b) (b) VESA Channels #6, 16 & 17
3. R/V Arming & Fusing No-Go	Missile Downstage Simulator	(a) Same as (1 a & b) (b) VESA Channels #7, 16 & 17
4. P/O Shut-down	Programmer Group	(a) Same as (1 a & b) (b) VESA Channels #16 & 17
5. Umbilical Release Inhibit	Missile Downstage Simulator	(a) Launch Sequence completed per Test 2.3.1.7. (b) VESA Channels #6, 7, 8, 16 & 17
6. Arm Ordnance Devices Inhibit	Missile Downstage Simulator	(a) P/O and Coupler Shut-down within 30 seconds. (b) Same as (1 b) (c) VESA Channels #6, 7, 8, 16 & 17

Table 2.3.2.2-3

Fault	Location	Response
1. Ordnance Devices Safe Inhibit	Missile Downstage Simulator	(a) Launch completed per Test 2.3.1.7. (b) VRSA Channels #6, 7, 8, 16 & 17.
2. W/H No-Go	Missile Downstage Simulator	(a) Same as (1 a & b)
3. P/V Arming & Fusing No-Go	Missile Downstage Simulator	(a) Same as (1 a & b)
4. Arm Ordnance Devices Safe Inhibit	Missile Downstage Simulator	(a) P/O & Coupler shut-down. (b) Alarm #1 and Fault indicator acti- vated at LCC.
5. P/O Shut-Down	Programmer Group	(c) VRSA Channels #6, 7, 8, 16 & 17. (a) Same as (4 a, b & c)



TEST 2.3.2.3

1. Title

Single Thread Security Violations.

2. Objective

To simulate Security violations to determine system response.

3. Description

3.1 Connect the equipment per Figure 2.1.1.1-1.

3.2 Start up the system per Test 2.1.1.1 and 2.3.1.1.

3.3 Initiate an Inner Security violation by activating the appropriate switch at the S&M Simulator.

3.4 Verify that Alarm #1 and the Inner Security Violated lamp are activated at the LCC. Depress the Alarm Reset button at the LCC.

3.5 Reset the S&M Simulator, then simultaneously depress the Security Reset and Status Indicator buttons at the LCC.

3.6 The Inner Security indicator shall extinguish.

3.7 Repeat paragraphs 3.3 through 3.6 for Outer Security Violation.

3.8 Test complete.

4. Equipment in Test

See Figure 2.1.1.1-1.

5. Test Equipment Required

None.

6. Data Required

Record all observations in the Test Log.

TEST 2.3.2.4

1. Title

Continuity Loops and Drawer Removals.

2. Objectives

To verify that the system responds correctly to interruption of the No-Go Continuity Loop.

3. Description

- 3.1 Connect the equipment per Figure 2.1.1.1-1.
- 3.2 Place the system into Strategic Alert per Test 2.3.1.1.
- 3.3 Remove Cable W521 from the SCN/CTE rack and verify that the P/G and Coupler shut down. Interrogate VRSA and verify that Channel #14 is reported. Alarm #1 and the Fault indicator shall activate at the ICC. Reset VRSA and Alarm #1. Connect Cable W521 and start up the system to Strategic Alert.
- 3.4 Repeat paragraph 3.3 for Cable W573 at the P/G.
- 3.5 Repeat paragraph 3.3 for Cable W505.
- 3.6 Repeat paragraph 3.3 for Cable W531.
- 3.7 Repeat paragraph 3.3 for Cable W510 at J05 of the Distribution Box.
- 3.8 Repeat paragraph 3.3 for Cable W548 at J02 of the Distribution Box.
- 3.9 Remove the LEU Drawer #2 at the SCN/CTE and verify that the results of paragraph 3.3 occur. Insert the Drawer and start up the system to Strategic Alert.
- 3.10 Remove the Mechanical Decoder from the P/G while the system is in Strategic Alert and verify that the results of Paragraph 3.3 occur. Insert the Decoder and start up the system to Strategic Alert.

3.11 Initiate a Calibrate Sequence per Test 2.3.1.3 and remove the Mechanical Decoder from the P/G. Verify that the system is not affected.

3.12 Test complete.

4. Equipment in Test

See Figure 2.1.1.1-1.

5. Test Equipment Required

None

6. Data Requirement

Record all observations in the Test Log.



TEST 2.3.3.1

1. Title

SIN Communications LCF to LF.

2. Objective

To verify that the SIN communications system between the LF and LCF performs correctly.

3. Description

3.1 Connect the equipment per Figure 2.1.1.1-1.

3.2 Connect handsets or headsets at both CCP's.

3.3 Verify the ability of the LCF to ring the LF.

3.4 Verify the ability of the LF to ring the LCF.

3.5 Verify the two-way communications path between the LF and LCF.

3.6 Test Complete.

4. Equipment in Test

See Figure 2.1.1.1-1.

5. Test Equipment Required

None

6. Data Requirements

Record all observations in the Test Log.

TEST 2.3.3.2

1. Title

SIN Communications, LF Intrasite

2. Objectives

To verify that the Intrasite communications system of the LF performs correctly.

3. Description

3.1 Connect the equipment per Figure 2.1.1.1-1.

3.2 Verify the two-way communications path between LF Intrasite handsets or headsets.

3.3 Test Complete.

4. Equipment in Test

See Figure 2.1.1.1-1.

5. Test Equipment Required

None

6. Data Requirements

Record all observations in the Test Log.

TEST 2.3.3.3

1. Title

HVC Communications, LCF to MS/CTE.

2. Objective

To verify that the HVC Communications System performs correctly.

3. Description

3.1 Connect the equipment per Figure 2.1.1.1-1.

3.2 Patch an audio frequency oscillator into receive line C2VR2.

3.3 Ring the CCP's by adjusting the oscillator to 1250 cps and 2200 cps.

The CCP's shall ring.

3.4 Depress the Operator and Telephone buttons on the CCP and verify two-way communications between the CCP's and the MS/CTE.

3.5 To verify ability of the CCP's to transmit a ring signal, patch an oscilloscope to C2VX2.

3.6 Depress ring buttons A, B, C, D and all at the CCP's and verify receipt of ring signals at the oscilloscope.

3.7 Test Complete.

4. Equipment in Test

See Figure 2.1.1.1-1.

5. Test Equipment Required

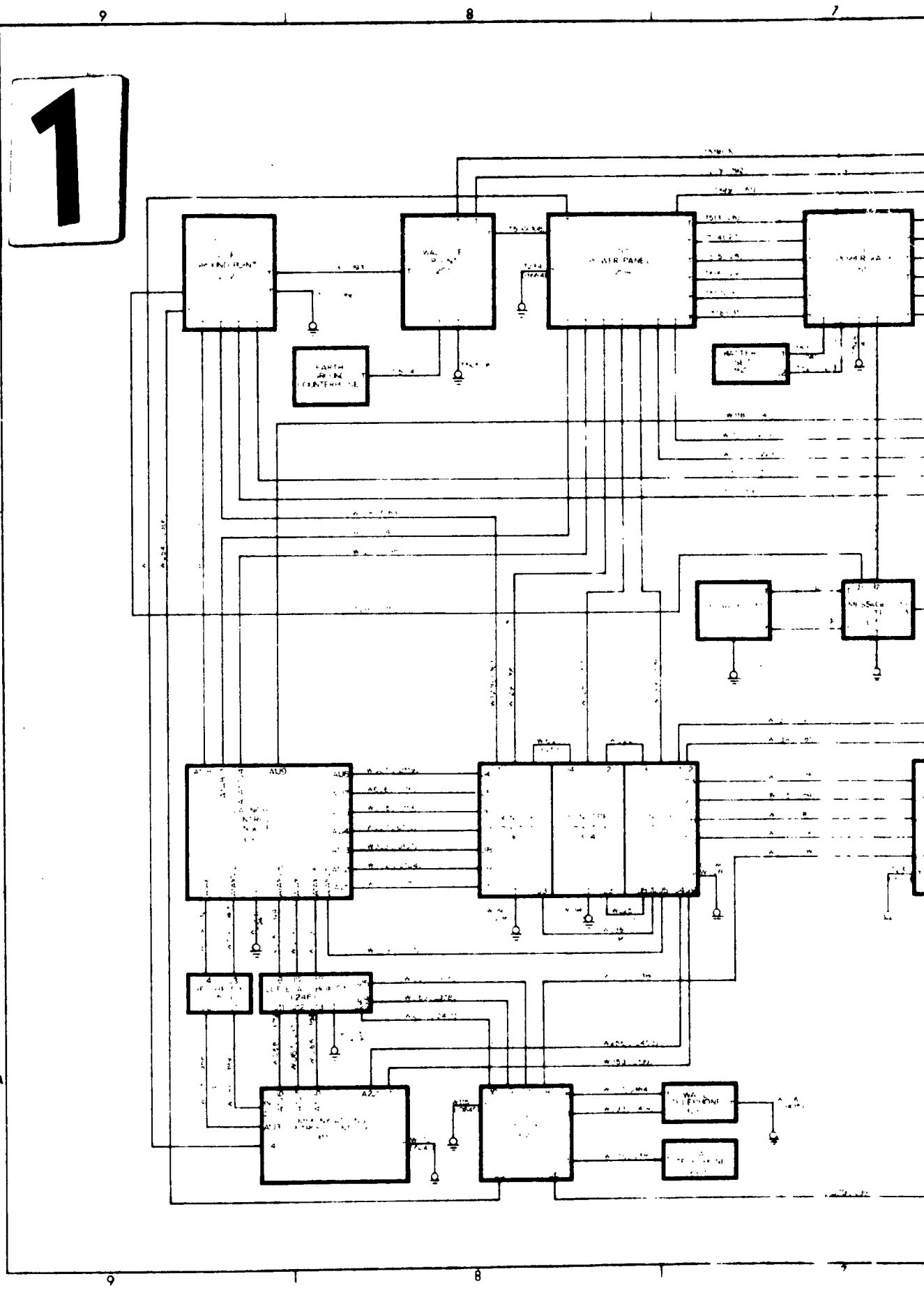
5.1 Audio Oscillator, Hewlett-Packard

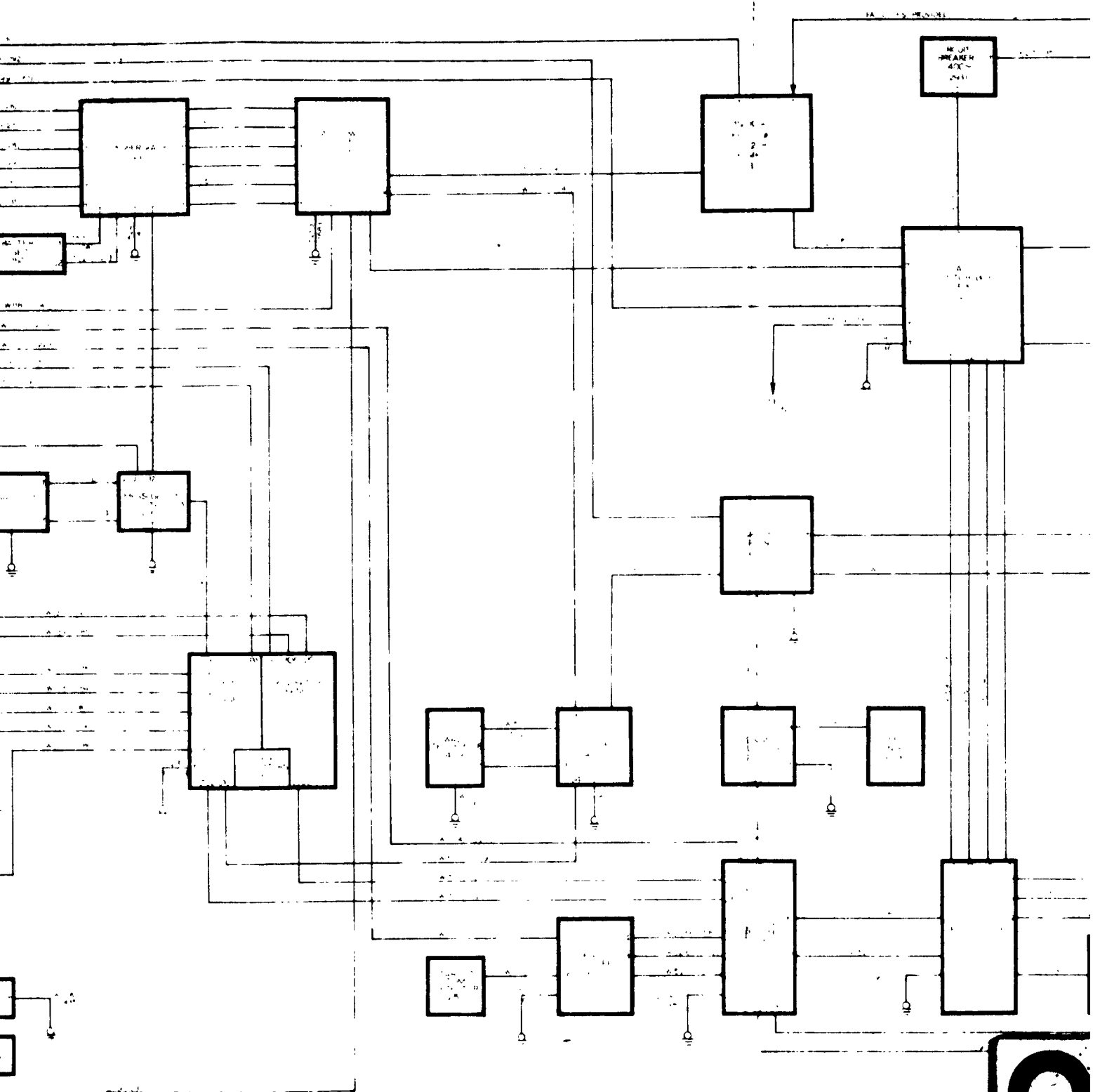
5.2 Oscilloscope, Tektronix 545A.

6. Data Requirements

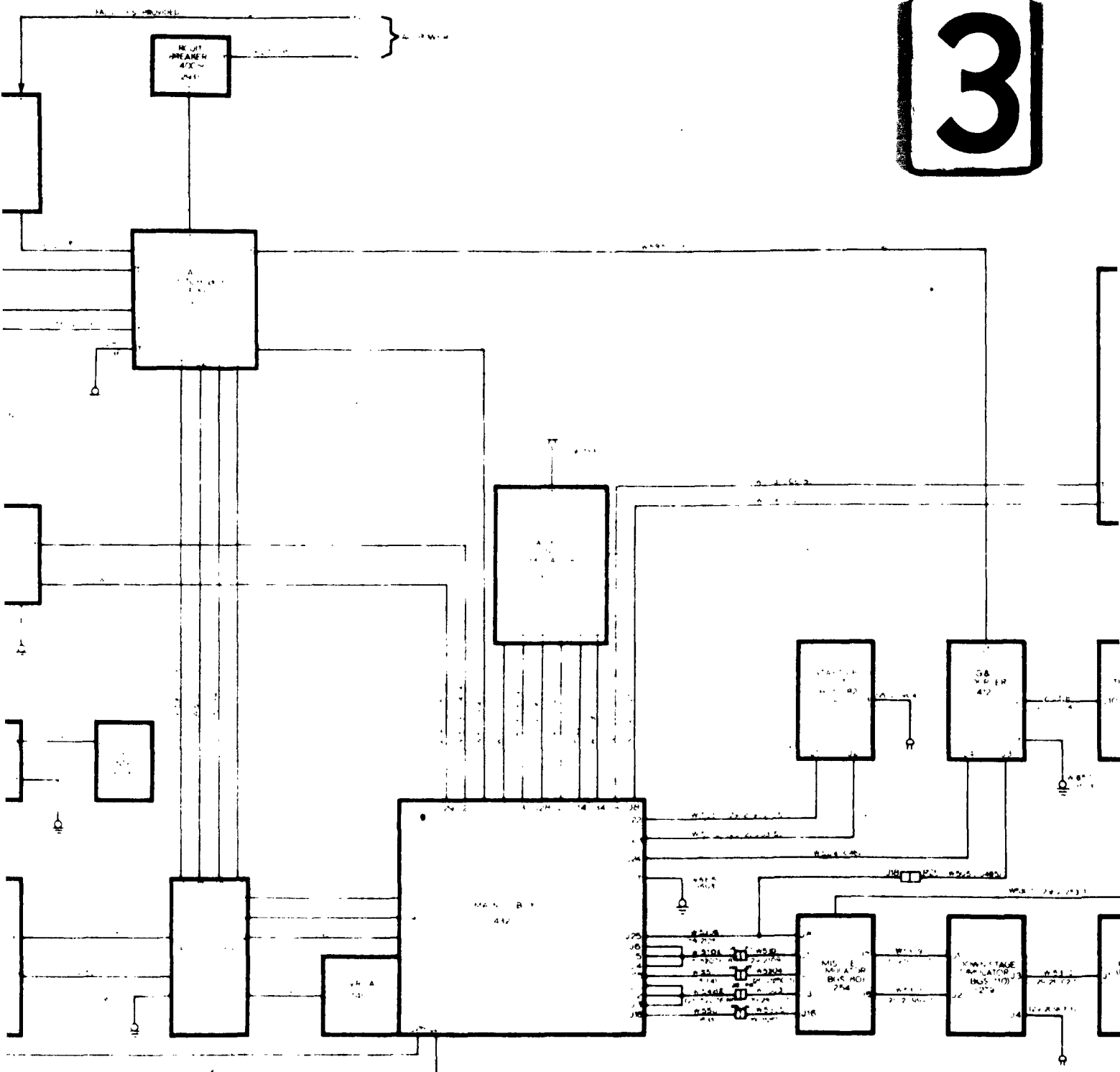
Record all observations in the Test Log.

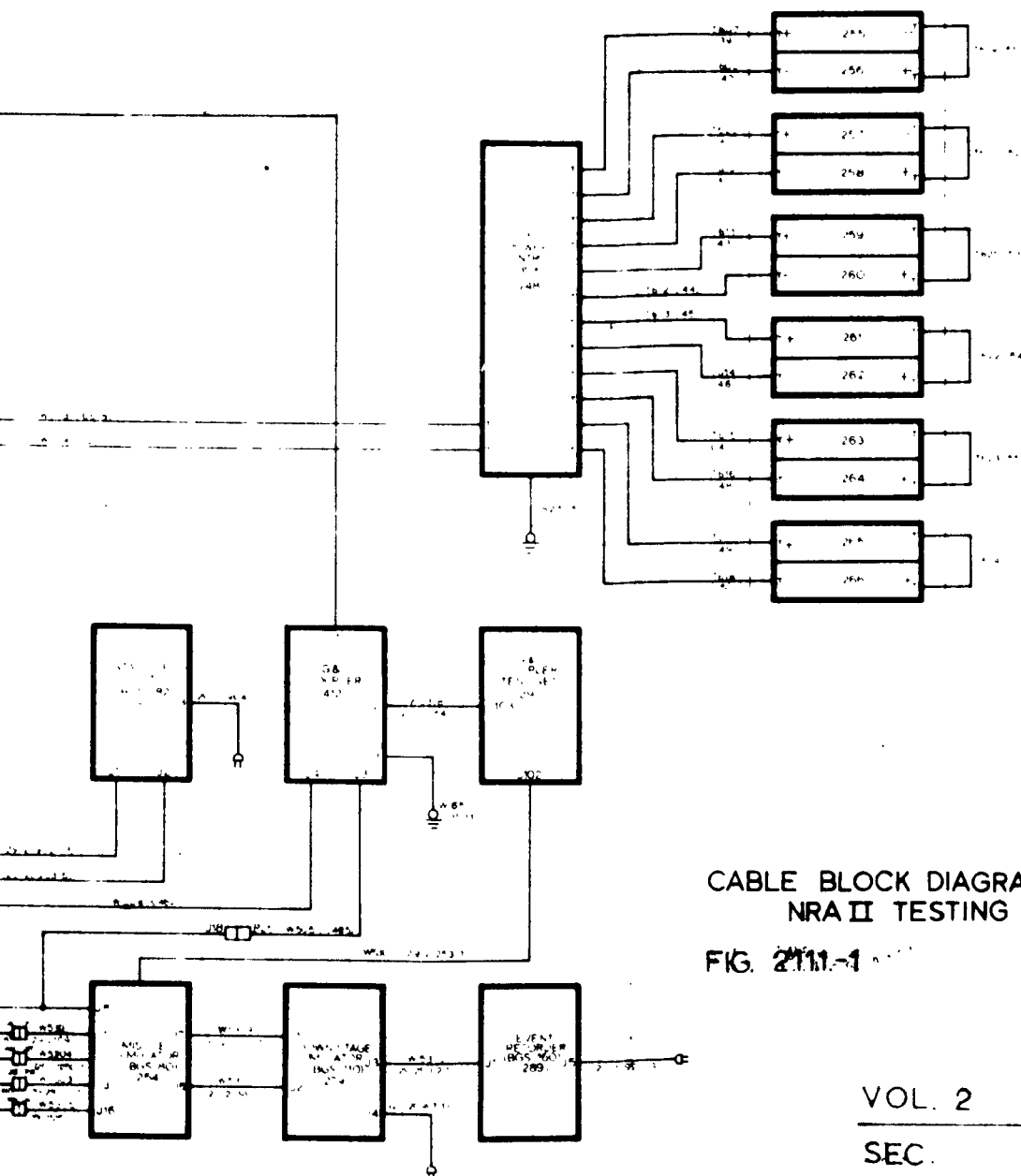






3





CABLE BLOCK DIAGRAM
NRA II TESTING

FIG. 2111-1

4

VOL. 2 NO. 02
SEC. PAGE 43

BY WHAT FOR LIST OF MATERIALS AND NOTES	
DATE	BY
2/2/54	J
FOR R.A.	
2/2/54	